

Sepsis Summary

1. **Sepsis Recognition** can occur in multiple ways including:
 - a. A nurse Sepsis Screening.
 - b. A nurse SIRS, Sepsis, or Septic Shock Alert.
 - c. A provider **Open Chart Sepsis or Septic Shock Alert**.
2. **Sepsis Response:**
 - a. Provider orders/launches the **Sepsis Advisor**.
 - b. Clinical Staff initiates orders.
3. **Sepsis Reassessment:**
 - a. Within one hour of fluid bolus completion, the nurse completes two full sets of vital signs and updates the provider.
 - b. **Sepsis Advisor is relaunched** by the provider for addition of orders.

Note:

- The system continually monitors patient results and alerts upon recognition of SIRS, Sepsis and Septic Shock.
- SIRS, Sepsis, and Septic Shock Alerts automatically place orders for CBC, CMP, and Lactic Acid if NOT present.
- Alerts and the nurse Screening tool are suppressed for 72 hours after the Sepsis Advisor is ordered unless the patient qualifies for Septic Shock criteria.
- Alerts do not fire for maternity unit patients.

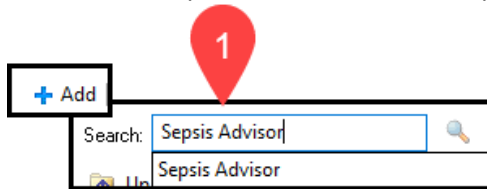


Sepsis alerts are displayed on the ED LaunchPoint dashboard next to the patient's name.

Sepsis Recognition: Accessing the Sepsis Advisor

When Sepsis is determined, the provider launches the Sepsis Advisor. It can be accessed from:

1. Orders.



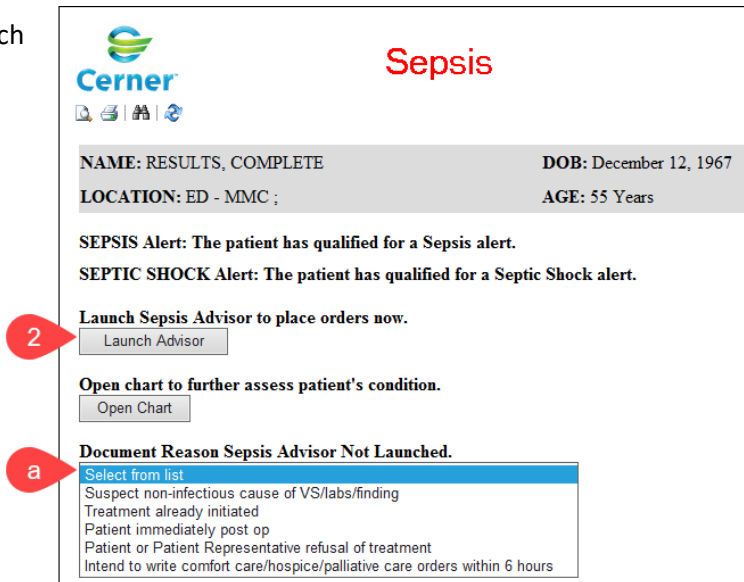
NOTE:

- Nurses cannot order the Sepsis Advisor. Only providers can place the order.
- Prior to Launch of the Sepsis Advisor a documented weight is required (measured or non-measured).

2. The Open Chart Sepsis/Septic Shock Alert. Select Launch Advisor.

NOTE 2a:

- If the provider determines that Sepsis is **NOT** present, they need to select from the **Document Reason Sepsis Advisor Not Launched** drop-down and document the explanation of non-infections cause of SIRS and organ dysfunction.
- A selection from this list will suppress Sepsis Alerts (excluding the Septic Shock Alert) and the nurse Sepsis Screening Tool.



Sepsis Response: Sepsis Advisor

Once open, the Sepsis Advisor directs providers through three sections:

1. Evaluate Patient Risk
2. Select Recommendations
3. Document and Sign

1. **Evaluate Patient Risk:** View allergies, relevant labs, recent antibiotic orders, microbiology, vital signs, and select infection sources and factors.
 - a. This patient shows signs of:
 - i. The drop-down defaults to the most recently assigned system alert but can be modified per provider judgement. The Sepsis diagnosis will reflect **The patient shows signs of:** selection.
 - b. Suspected Infection Sources
 - i. Selection of a source with a * requires an additional Suspected Infection Factors selection (below sources).
 - ii. Selection of Patient displays no signs or symptoms of infection opens a window to a selection of lab orders, and then to Document and Sign.
 - c. Click Select Recommendations

Interdisciplinary Sepsis Advisor

Name: PASMUNSON, WEDNESDAY | FIN: MD2221400011 | MRN: MD0013442 | Age: 26 Years | Date of Birth: 03/26/1996 | Weight: -- | Height/Length: -- | Encounter Type: I/P (Inpatient) | Gender: Female
Location: A2 2522/B | Visit Reason:

Discern Advisor®: Interdisciplinary Sepsis Management Advisor | * Selection Required | This page is not a complete source of visit information.

Evaluate Patient Risk | Select Recommendations | Document and Sign

Evaluate Patient Risk

Current State

This patient shows signs of: **Septic Shock** | Sepsis Severity Definitions | Last Alert: Septic Shock 09/23/2022 07:24

Allergies: acetaminophen, Cough

Relevant Labs (Last 24 hours):

Bilirubin Total	↑ 1.7 mg/dL	09/23/2022 07:22
Creatinine, Serum	↑ 112 mg/dL	09/23/2022 07:22
INR	↑ 1.03	09/23/2022 07:22
Lactic Acid, Venous	↑ 5 mmol/L	09/23/2022 07:23
Platelet Count	↑ 405 K/uL	09/23/2022 07:22
WBC	↑ 14 K/uL	09/23/2022 07:22

Active Antibiotics/Anti-Infectives/Vasopressors (Last 90 Days):

Antibiotic	Order Type	Order Details	Last Dose	Duration
ceftriaxone	Inpatient Rx	2,000 mg, 20 mL, 200 mL/2hr, IV/Push (Syringe), q24hr	09/22/2022 08:00	10 day(s)

Microbiology (Last 6 Results): No results found

Vital Signs/Measurements (Last 72 Hours):

	Latest	Previous	Previous
Temp	↑ 38.9 09/23/2022 07:00	↑ 38.5 09/23/2022 02:00	37 09/22/2022 23:00
HR	110 09/23/2022 07:00	105 09/23/2022 02:00	100 09/22/2022 23:00
RR	16 09/23/2022 07:00	18 09/23/2022 02:00	18 09/22/2022 23:00
BP	98/145 09/23/2022 07:00	100/50 09/23/2022 02:00	110/75 09/22/2022 23:00
MAP	63 09/23/2022 07:00	67 09/23/2022 02:00	87 09/22/2022 23:00

Map less than or equal to 65 or SBP less than or equal to 90

Suspected Infection Sources

Select one infection source.

Patient displays no signs or symptoms of infection. | Meningitis / CNS | Urinary Tract

Bacteremia (confirmed or suspected) | Pneumonia* | Known Source (Not Listed)*

Bone / Joint | Skin/Soft Tissue* | Unknown Source (not neutropenic)

Febrile Neutropenia

Intra-Abdominal

Suspected Infection Factors

Pneumonia

Aspiration Pneumonia | CAP-Non-ICU | CAP-ICU

HAP (Hospital Acquired Pneumonia)

Select Recommendations

Reset Selections | Exit Advisor | Exit

2. **Select Recommendations:** View and/or discontinue currently active relevant medication orders and select recommendations for Special Dosing, Antibiotics, Fluid Therapy, Diagnostic Studies, and Vasopressors.
 - a. **Currently Active Relevant Medications**
 - i. Select any Active Antibiotics, and/or Vasopressors orders to be cancelled.
 - b. **Dosing**
 - i. Selections auto default based on creatinine clearance and patient encounter type, and do not impact the antibiotic recommendations. The Dialysis Patient drop-down is a manual selection.
 - c. **Antibiotic Recommendations**
 - i. Select an antibiotic as appropriate, the preferred and alternative antibiotics display for selection.
 - ii. Pharmacy Following (RX use Only) is preselected -Do Not Uncheck. Pharmacy will follow and adjust the dosing as necessary.

Select Recommendations

4 Currently Active Antibiotics/Anti-Infectives/Vasopressors

Select any active antibiotic orders to be cancelled.

Active Antibiotics

Cefepime q12hr, IVPB Last Dose: -- Clear

A broad spectrum antibiotic was initiated for a suspected infection other than severe sepsis and continued until the time of presentation.

Dosing—Selections default based on creatinine clearance and patient encounter. Any selection will be the same standard dose and will be adjusted later by Pharmacy via the Pharmacy Following (RX use Only) order pre-checked under Antibiotic Recommendations

Renal Function

Creatinine Clearance: -- *The weight being used in the advisor is a Measured weight: 82.1 kg*

Estimated Creatinine Clearance: **48.66 mL/min** 09/09/2022 12:48

Standard Dose Pharmacy to Adjust for Renal Impairment: Greater than or equal to 40 but less than 50

Started in ED, Pharmacy to Adjust if Necessary Pharmacy to Adjust for Dialysis Patient: [Dropdown]

Antibiotic Recommendations – Based on MHC Pharmacy best practice, Pharmacy will follow and adjust dosing as necessary

Pneumonia - CAP-Non-ICU

Preferred - Ceftriaxone + Azithromycin OR Doxycycline. Clear

Ceftriaxone IVPush 2,000 mg, IVPush (Syringe), Inject, q24hr, STAT doxycycline 100 mg, Oral, Cap, BID, STAT

Azithromycin IVPB 500 mg, IVPB, IVPB, q24hr, STAT, 3 dose/occurrence

Alternative - If severe, type 1 penicillin allergy: Levofloxacin. Clear

Levofloxacin IVPB 750 mg, IVPB, IVPB, q24hr, STAT

Pharmacy Following - Do Not Uncheck Clear

Pharmacy Following (RX use Only) Antibiotic Stewardship, Sepsis advisor initiated. Please review medication profile for appropriate indication, dose, & frequency. This task can be dc/d after the patient's organ function has stabilized (usually w/in 24-48 hr)

- d. **Fluid Therapy**
 - i. Selection defaults to Sodium Chloride 0.9% IV Bolus 30mL/kg, change the selection as appropriate.

Fluid Therapy

Pharmacologic - Infuse 30ml/kg within 3 hours of Septic Shock defined by persistent hypotension or lactate greater than or equal to 4. May dose on IBW if BMI is greater than 30. If concern for fluid overload, dosing less than 30ml/kg is acceptable.

Sepsis Bolus - Sodium Chloride 0.9% IV BOLUS (mL/kg) 30 mL/kg, IVPB, ONCE, STAT, 1 dose/occurrence, 999 mL/hr

Sepsis Bolus - Lactated Ringers IV BOLUS (mL/kg) 30 mL/kg, IVPB, ONCE, STAT, 1 dose/occurrence, 999 mL/hr

Sepsis Bolus - Sodium Chloride 0.9% IV BOLUS - Reduced Volume mL, IVPB, ONCE, STAT, 1 dose/occurrence, 999 mL/hr

Sepsis Bolus - Lactated Ringers IV BOLUS - Reduced Volume mL, IVPB, ONCE, STAT, 1 dose/occurrence, 999 mL/hr

e. Sepsis Management

- i. Select and unselect orders as appropriate.

NOTE: Previously Documented orders that are preselected may need to be unselected or cleared to prevent duplicate orders. The documented selection looks back 24 hours.

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Unselect previously ordered labs after referencing the Documented column as appropriate.

	Documented		
<input checked="" type="checkbox"/> Blood Culture x 2 STAT, q5min, 2, dose/occurrence		<input type="checkbox"/> Blood Culture, Line Draw STAT, ONCE	Documented
<input checked="" type="checkbox"/> Lactic Acid, Venous STAT, ONCE		<input type="checkbox"/> Sed Rate/Erythrocyte STAT, ONCE	
<input checked="" type="checkbox"/> CBC/Dif STAT, ONCE		<input type="checkbox"/> Lipase Assay STAT, ONCE	
<input checked="" type="checkbox"/> Comprehensive Metabolic Panel STAT, ONCE		<input type="checkbox"/> Procalcitonin STAT, ONCE	
<input checked="" type="checkbox"/> Urinalysis w/ Culture if Indicated STAT, ONCE		<input type="checkbox"/> pH, PCO2 STAT, ONCE	
<input checked="" type="checkbox"/> C-Reactive Protein STAT, ONCE	Ordered 11/04/2022 12:22	<input type="checkbox"/> Gases, Arterial STAT, ONCE	
<input checked="" type="checkbox"/> Prottime STAT, ONCE		<input type="checkbox"/> Cortisol, Random STAT	
<input type="checkbox"/> BNP STAT, ONCE		<input type="checkbox"/> Hepatic Function STAT, ONCE	
<input type="checkbox"/> Troponin, HS, Baseline (OHR) STAT, ONCE			

Documented sections display orders made within 24 hours or less.

STAT Radiology

	Documented		
<input type="checkbox"/> Electrocardiogram STAT, ONCE		<input type="checkbox"/> CT ABD + PELVIS KIDNEY STONE W/O STAT	Documented
<input type="checkbox"/> CHEST 1 V STAT		<input type="checkbox"/> US ABDOMEN RUQ STAT	
<input type="checkbox"/> CT ABD + PELVIS W/IV CONT (NO ORAL) STAT			

Follow Up Labs

	Documented		
<input type="checkbox"/> Lactic Acid, Venous Timed/Dated STAT, ONCE, T;N+240		<input type="checkbox"/> CBC/Dif Timed/Dated STAT, ONCE, T;N+240	Documented

Patient Care.

Unselect individual orders or Clear all Patient Care orders previously ordered after

	Docu		
<input type="checkbox"/> CVP IV Fluid Parameters T;N, After initial bolus, if CVP less than 8 and MAP less than 65, off pressors, administer 500 mL boluses up to a maximum volume of 1000 mL Sepsis Bolus - Sodium Chloride 0.9% IV BOLUS 500 mL, IV, PRN, 30 minutes, Bolus, PRN, See comment	Ordered 11/04/2022 12:22 Ordered 11/04/2022 12:22	<input checked="" type="checkbox"/> 2 Peripheral IV Sites - Sepsis Advisor This patient is to have 2 large bore IVs (18 gauge) if not already present. Call attending if unable to obtain or use central line if present.	
<input checked="" type="checkbox"/> Sepsis Checklist Reference Text ****See Reference Text and Comments****		<input checked="" type="checkbox"/> Nurse to Page Vascular Access Team Place "STAT Sepsis" page to VAST for 2 large bore IVs (18 gauge) if not already present - call attending if unable to obtain or use central line if available.	Ordered 11/04/2022 12:22
<input checked="" type="checkbox"/> Sepsis Call Parameters Ongoing Sepsis Protocol call parameters located in Order Comment Field ****Hover for Comments****	Ordered 11/04/2022 12:22	<input checked="" type="checkbox"/> Sepsis Education Task BID	
<input checked="" type="checkbox"/> AVOID the placement of PERIPHERAL IV's in HAND Please AVOID the placement of PERIPHERAL IV's in the HAND on ALL Sepsis patients if possible., Evidence based recommendations call for consideration of large bore IV(s) and/or central line especially in patients meeting Severe Sepsis or Septic Shock Cr...		<input checked="" type="checkbox"/> Obtain urine specimen within 30 minutes. If unable to obtain, straight cath for specimen - ED	

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- f. Vasopressors & Corticosteroids
 - i. Make selections as appropriate.
 - g. Click Confirm.

Vasopressors - Add vasopressin for persistent shock requiring escalating doses of norepinephrine. Consider adding epinephrine or angiotensin II for refractory shock not responding to norepinephrine and vasopressin. Intensivist consult required for angiotensin II.

<input type="checkbox"/> Norepinephrine Drip - TITRATE -Vesicant- Initial rate 5 mcg/min, with Maximum Rate of 50 mcg/min, Maintain MAP greater than or equal to 65, Titrates 1 to 4 mcg/min q 5 min, Call if specified parameter(s) not achieved at maximum rate, Wean 1 to 4 mcg/min q 15 min until off	Documented	<input type="checkbox"/> Angiotensin II Drip - TITRATE	Documented
<input type="checkbox"/> Vasopressin Drip SET RATE - M,C,K,P		<input type="checkbox"/> Epinephrine Drip - TITRATE**	
<input type="checkbox"/> DOBUTamine Drip - TITRATE for Sepsis Initial rate: 2.5 mcg/kg/min, up to a **Maximum rate of 10 mcg/kg/min, Maintain ScVO2 greater than 70%, Titrates 2.5 mcg/kg/min q 15 min, Call if specified parameter (s) not achieved at maximum rate, Wean 1 - 2 mcg/kg/min q1hr until off			

Corticosteroids. - Physician to consider hydrocortisone (Solu-Cortef) if shock is refractory to fluid and vasopressor administration.

<input type="checkbox"/> Solu-Cortef IVPush	Documented	<input type="checkbox"/> fludrocortisone	Documented
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- 3. Document and Sign: Review and sign the orders.
 - a. Add the assigned diagnosis to the diagnosis list.
 - b. Click Sign Orders. Orders are added to the scratchpad for review.

Document and Sign

Document

- ✓ Suspected Infection Source of Urinary Tract
- ✓ Add Septic Shock to the diagnosis list

Currently Active Antibiotics/Anti-Infectives/Vasopressors

- ✓ Continue Cefepime 2000mg, q8hSTD, IVPB
- ✓ Cancel/DC piperacillin-tazobactam 4500mg, q8hSTD, IVPB

Note: Active Medications that were unselected will be Canceled/Discontinued.

Antibiotic Recommendations

- ✓ Pharmacy Following (RX use Only) Antibiotic Stewardship, Sepsis advisor initiated. Please review medication profile for appropriate indication, dose, & frequency. This task can be dc/d after the patient's organ function has stabilized (usually w/in 24-48 hr)

Fluid Therapy

- ✓ Sepsis Bolus - Sodium Chloride 0.9% IV BOLUS (mL/kg) -new 30 mL/kg, IV, Inject, ONCE, Start T;N, STAT, Infuse Over: 1.5 hour(s)

Diagnostic Studies

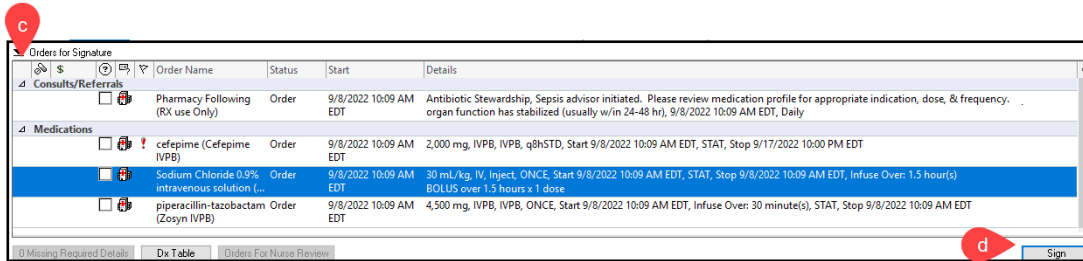
- ✓ Blood Culture x 2 STAT
- ✓ Lactic Acid, Venous STAT, ONCE
- ✓ CBC/Dif STAT, ONCE
- ✓ Comprehensive Metabolic Panel STAT, ONCE
- ✓ Urinalysis w/ Culture if Indicated STAT, ONCE
- ✓ C-Reactive Protein STAT, ONCE
- ✓ Prottime STAT, ONCE
- ✓ Sepsis Checklist Reference Text ****See Reference Text and Comments****
- ✓ Sepsis Call Parameters Ongoing Sepsis Protocol call parameters located in Order Comment Field *****Hover for Comments*****
- ✓ Communication to Nurse Please AVOID the placement of PERIPHERAL IV's in the HAND on ALL Sepsis patients if possible., Evidence based recommendations call for consideration of large bore IV(s) and/or central line especially in patients meeting Severe Sepsis or Septic Shock Cr...
- ✓ 2 peripheral IV sites This patient is to have 2 large bore IVs (18 gauge) if not already present. Call attending if unable to obtain or use central line if present.
- ✓ Nurse to Page Vascular Access Team Place "STAT Sepsis" page to VAST for 2 large bore IVs (18 gauge) if not already present - call attending if unable to obtain or use central line if available.
- ✓ Sepsis Education Task BID
- ✓ Obtain urine specimen within 30 minutes. If unable to obtain, straight cath for specimen - ED

Vasopressors & Corticosteroids

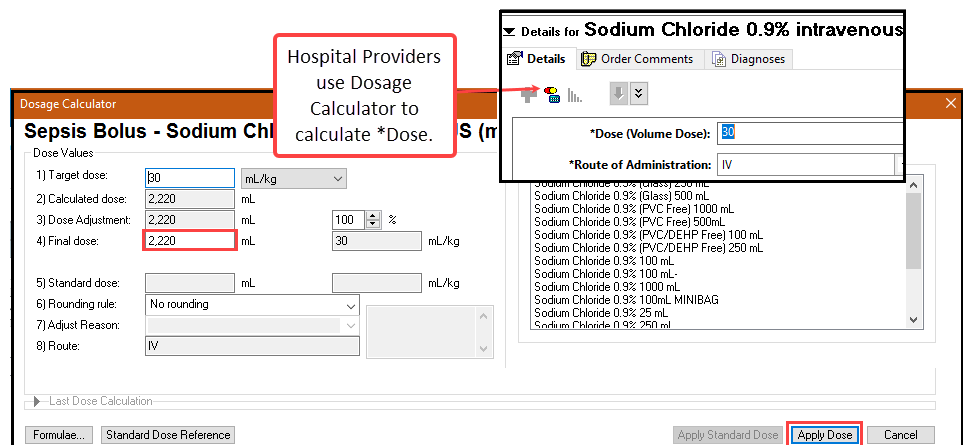
No new orders.

Add Septic Shock to the diagnosis list

- c. Review orders for Signature, make any additions/modifications, as necessary.
- d. Click Sign.



NOTE: Selection of a mL/kg order will require Hospital Providers to utilize the Dosing Calculator to signing. Open the Dosage Calculator, confirm Final dose and click Apply Dose.

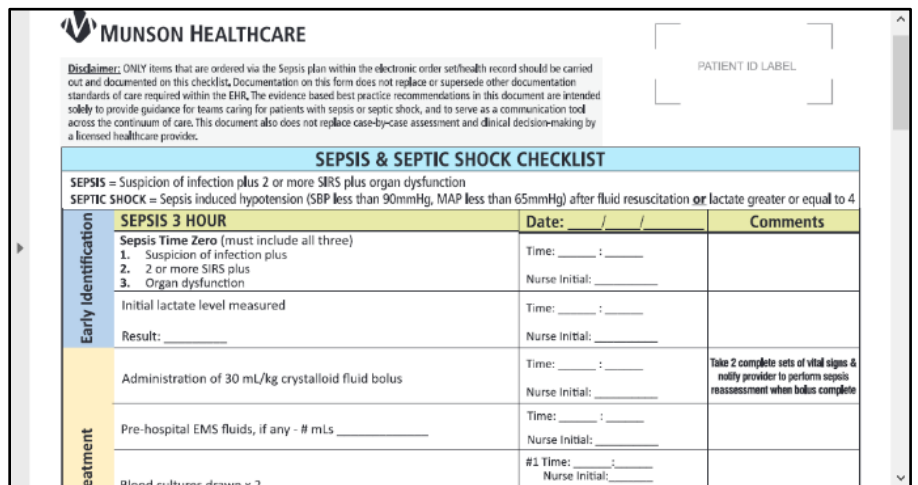


- e. Document Sepsis notification and corroboration of possible Sepsis diagnosis at the next earliest convenience.

Sepsis Reassessment

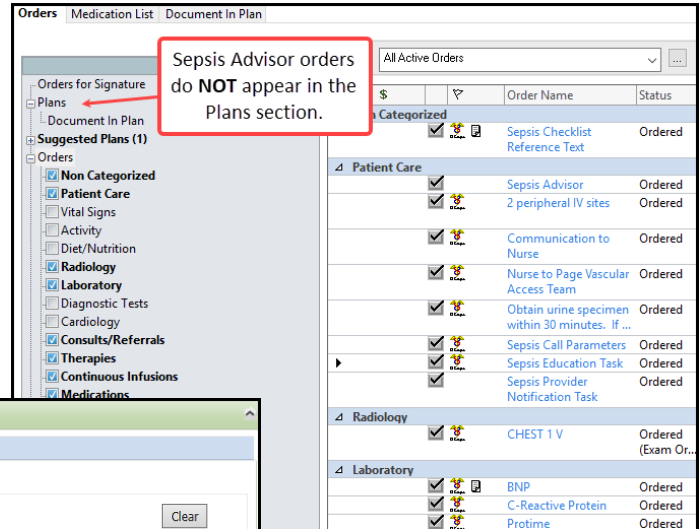
- 1. Within one hour of fluid bolus completion, the nurse completes two full sets of vital signs and updates the provider.
- 2. The Sepsis Advisor can be relaunched for the addition of orders.
- 3. The provider has three options for reassessment documentation:

- a. **Option #1:** If the CVP and/or ScVO2 are monitored, then NO provider reassessment documentation is needed.
- b. **Option #2:** If reassessment documentation is needed, the provider can pull up a Brief Note. Documentation can be completed by placing the cursor in the note and using the Auto-text phrase **.sepsis**.
- c. **Option #3:** Sign, date, and time the Sepsis & Septic Shock Checklist at the patient's bedside to attest the Sepsis reassessment.

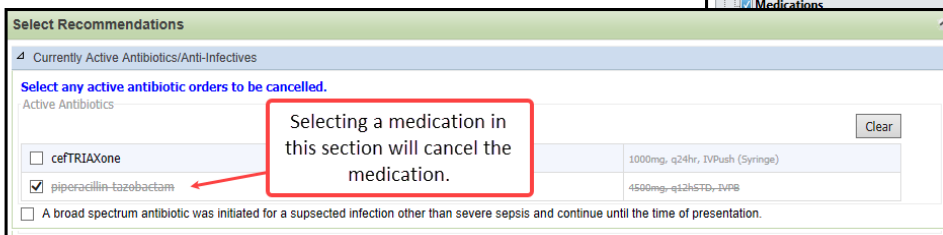


Viewing and Discontinuing Sepsis Advisor Orders

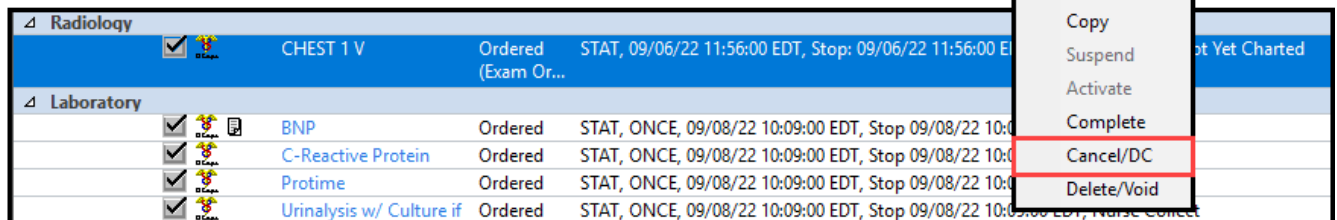
- Sepsis Advisor orders can be viewed in the Orders Flowsheet within the assigned categories of the Navigator.
 - Sepsis Advisor orders do **NOT** appear in the Plans (PowerPlan) section.



- Antibiotics and Vasopressors can be discontinued within the Sepsis Advisor.



- All Sepsis Advisor orders can be individually discontinued from the Orders Flowsheet.



Sepsis Definitions

Sepsis is life threatening organ dysfunction caused by a dysregulation host response to infection. The common language when referring to the Sepsis Severity at Munson Healthcare include:

Term	Definition
SIRS + Infection (This is NOT Sepsis)	Systemic Inflammatory Response Syndrome (SIRS) + suspected infection without organ dysfunction.
Sepsis	SIRS + suspected infection + organ dysfunction.
Septic Shock	Sepsis induced hypoperfusion evidenced by persistent hypotension despite adequate fluid resuscitation and/or lactic acid greater than or equal to 4mmol/L.

Results Review: Sepsis Screening Results

Within the Screening Results section of various flowsheets, users can view the following information:

- a. Recommendation/Action-Crawler - Displays system generated Sepsis Alerts.
- b. Sepsis Infection Source - Displays Infection Source assigned in the Sepsis Advisor.
- c. Patient shows signs of (Sepsis Advisor) - Displays the Sepsis term assigned in the Sepsis Advisor.
- d. Sepsis Dismiss Alert - Displays **Yes** when the provider selects **Open Chart** from Sepsis Alert.

Flowsheet	10/7/2022 12:22 PM EDT	10/7/2022 11:14 AM EDT	10/7/2022 10:50 AM EDT	10/7/2022 10:42 AM EDT
Screening Results				
Recommendation/Action-Crawler				Septic shock *
Sepsis Infection Source		Pneumonia		
Patient shows signs of (Sepsis Advisor)		Septic shock		
Sepsis Dismiss Alert			Yes	